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Conference Abstract

An Introduction to Scientific Names of Organisms, and the Taxon Concepts they Represent

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Abstract

In many ways, taxonomy and nomenclature lie at the center of all of biodiversity science. Most data concerning biodiversity is given context through scientific names, which follow a basic standard of nomenclature and classification that has endured for more than a quarter of a millennium. This standard has endured not only the test of time, but also major shifts in thinking about biodiversity, such as the revolutionary notion of evolution by natural selection, which were introduced a full century after the standard had been adopted. The system of scientific names now faces a similar paradigm-shifting challenge as the world of science transitions to the age of digitization and DNA sequences. Although most people are familiar with the practice of assigning scientific names to organisms, many are not aware of the history of the practice, the current rules and regulatory bodies for assigning scientific names to organisms, the subtle but important distinctions between “taxonomic names” and “taxonomic concepts” (and the corresponding implications for biodiversity informatics), or the minefield of potential pitfalls surrounding the ambiguous and inconsistent terminology used in associated discussions. From an informatics perspective, there has been a great deal of discussion on the difference between scientific names of organisms, and the taxonomic concepts they are intended to represent. Although in many ways the debates of more than two decades ago continue today, there have been some tangible steps forward, and we may be approaching a moment when the informatics of scientific names and taxon concepts achieves a new level of utility.

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